

#	Question	Company A	Company B	Company C	Company D	Company E	Company F	Company G
1	Use Model	Trace	HCC V	Trace	No			Steady State Analysis Only
2	Commercially Available	Yes	Yes	Yes				
3	Size HVAC Equipment	Yes	Yes	Yes				
4	Analyze HVAC Energy	Yes	No	Yes				
5	Documented	Yes	Yes	Yes				
(a)	User Manuals	Yes	Yes	Yes				
(b)	Algorithms Explained	Yes	Yes	Yes				
6	Validated by							
(a)	Experiments		No					
(b)	Other Models		Yes					
(c)	Other Methods							
(d)	Not known	Yes		Yes				
7	HVAC Systems Analyzed	All	Wet, Dry	All				
8	HVAC Deficiency	see below	see below	see below	see below			see below
9	Quality of Job	3	5	4				
10	Type of Analysis							
(a)	Steady state/ Dynamic	Steady state						
(b)	Simulation Period	Hourly	Hourly	Hourly, Monthly				
11	Economic Analysis							
(a)	Life-Cycle Cost	Yes	No					
(b)	Payback	Yes	No					
(c)	Other			Not Known				
12	Handle Utility Tariffs	Yes	No	No				
13	Detailed Inputs	Considerable Detail	Moderate	Conderable				
14	Outputs							
(a)	Annual Energy Consumption	Yes		Yes				
(b)	Peak Electricity Demand	Yes		Yes				
(c)	Annual Energy Cost	Yes		Yes				
(d)	Peak HVAC Load	Yes	Yes	Yes				
(e)	Performance Parameters	Yes	Yes	Yes				
15	Inputs match data available?	Moderately	Moderately	Poorly				
16	Strengths, Limitations	see below	see below	see below	see below			see below
17	Other Considerations							
18	Extent of In-house Modeling	All		All				
19	Analysis Detail Wanted	see below	see below	see below	see below			see below
20	Priority of Outputs (top 3)							
(1)		Sizing	Sizing	Operating Costs	Total Energy Use			
(2)		Diversity Analysis	Diversity	Performance Analysis	Diversity			
(3)		Peak Energy Demand	End-use Energy Use	Peak Energy Demand	Peak Energy Demand			
21	Accuracy Required	10%	90%	20%				
22	Priority of features							
(1)		Accuracy	Accuracy	Accuracy	Ease of Use			
(2)		Ease of Use	Ease of Use	Ease of Use	Speed of Calculation			
(3)		Speed of Calculation	Speed of Calculation	Speed of Calculation	Accuracy			
(4)		Detail Level of Analysis	Detail Level of Analysis	Detail Level of Analysis				
23	Integration with other Tools	Autocad, EXCEL		Bill of Material	Vendor Eqpt Selection			
24	Time Available							
(a)	to assemble inputs	16 Hrs	1 - 14 days	Little as possible	2 days			
(b)	for complete analysis	2 - 4 weeks	1 - 4 weeks	Little as possible	1 week			
25	Who Uses the tool	A/E firm	A/E firm		90% A/E, 10% Vendor			

- 8 Present Model Deficiency
 Greene Engineering: (TRACE) Dehumidification load requests; credit for sensible cooling
 Affiliated Engineers: (HCC V) Does not handle HVAC systems and equipments at all
 M. Monerth: (TRACE) too cumbersome to use for industrial design. Better suited for commercial design
- 16 Strength & Limitations of Present Model
 Greene Egnineering: (TRACE) Detailed inputs/outputs - need to understand very well for meaningful results; Good energy analysis and load profile
 Affiliated Engineers: (HCC V) Not widows based; limited number of zones
 M. Monerth: (TRACE) too cumbersome to use for industrial design. Better suited for commercial design
- 19 Analysis Detail Preferred in Improved Model
 Greene Engineering: 80% - HVAC eqpt sizing peak load; 20% - Detailed energy analysis
 Black & Veatch Corp: Should be able to handle detailed external air data